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Application No.: 10/724,095

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2001P09588WOUS
Page 6 of 10**REMARKS****Claim Status**

After entry of this Amendment, Claims 1 – 13 are pending. By this Amendment, Applicants amend Claims 1 – 3, 5 – 7 and 10 – 13. No new matter has been added.

Claim Rejections – 35 USC § 103

The Examiner rejects Claims 1 – 4, 6, 7 and 10 – 13 under 35 USC § 103(a) as being unpatentable over Shimomura (U.S. Patent No. 6,115,707) in view of Bashomatsu (U.S. Patent No. 5,887,072). Regarding independent Claims 1 and 10, the Examiner asserts that Shimomura discloses all limitations except for the step of reading addresses in more than one language and a database comprising entries of acceptable read address elements with different, language dependent, transliteration variations. For that reason, the Examiner refers to Bashomatsu and asserts that Bashomatsu discloses these limitations. The Examiner concludes that since Shimomura and Bashomatsu are analogous art it would have been obvious to modify Shimomura by incorporating the teaching of Bashomatsu to improve recognition accuracy of reading addresses written/printed in multiple languages. Applicant respectfully traverses.

To expedite examination and allowance of the present application, Applicant amends independent Claims 1 and 10. Claim 1 is amended to further define the method for reading addresses in more than one language as comprising the step of processing an image of an address bearing surface to determine a language in which the address is written. Claim 10 is amended to further define the system for reading addresses in more than one language as comprising a language decision unit configured to determine a language in which an address is written.

Hence, the amended claims specify that a language is determined in which the address on an address bearing surface is written. The determination of the language occurs prior to the OCR unit actually reading the address characters. The OCR unit is a multi-lingual OCR unit (see unit 4 in Fig. 1 and page 2, lines 30-31), of the present application.

In regard to the processing prior to the actual address reading by the OCR, the present specification explains, as follows:

It is also advantageous, at the early stage of the image processing, that is to say even before the actual character recognition, to feed the segmented image data of the

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address blocks to a language decision unit wherein an assignment is made as to the feature set with the greatest correspondence, and thus to the corresponding language, on the image level by comparisons with language-typical feature sets. (Emphasis added.) (Page 4, lines 4-11.)

A scanned image 1 is made of an address bearing surface. The image is then processed 20 wherein [...] the region with the address block is determined using language-related layout models 11.1 to 11.n. Here, each layout model is compared with the image. If there is a correspondence or a similarity within a defined degree of similarity, the address block is assigned that language. [...] Pictorial comparisons are made between the address blocks, parts of addresses and address characters and corresponding language models 12.1 to 12.n. The degree of correspondence influences the decision of language [...]. In this way, the OCR character recognition unit is activated for this language and the character recognition 22 is carried out by means of the associated character set model 13.1 to 13.n. (Emphasis added.) (Page 9, lines 11-29.)

Hence, the language is determined even before the OCR tries to recognize the address characters. For the sake of providing an analogy to the automated process of the present invention, a human often can determine or guess in what language a word is written by looking at it, without being able to recognize or read the letters, let alone understand the word. From experience, one may know that a word is written with Greek characters or Arabic characters (e.g., dots below the base line never occur in the Latin script, but occur frequently in Arabic, or dots above the line occur rarely in English or in the Latin script, but occur frequently in Arabic (see specification on page 6, line 29, to page 7, line 3)). With that knowledge, one can consult the appropriate dictionary in a library of dictionaries.

Shimomura and Bashomatsu both relate to reading addresses using OCR technology. However, Shimomura or Bashomatsu, alone or in combination, at least fail to disclose or suggest a method or system, in which an image of an address bearing surface is processed to determine a language in which the address is written, and OCR means directed to this determined language read the address characters. Further, lacking such determination of a language in which the address is written and subsequent reading by OCR means, Shimomura or Bashomatsu, alone or in combination, fail to teach other limitations of Claim 1 or 10, such as verifying if elements substantially match a database entry, wherein the database includes entries of acceptable read address elements with different language dependent, transliteration variations.

Discussion of Shimomura

Shimomura discloses an address reading apparatus for a single language (Japanese). Shimomura's apparatus includes a word recognition section 101 that recognizes element

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words in an inputted image. (Col. 6, lines 35-38.) The word recognition section 101 outputs a plurality of word candidates together with word likelihoods of character recognition. (Col. 6, lines 38-44.) After this initial word recognition process, Shimomura uses a "post recognition" process to reduce the number of word candidates and to ultimately output the most likely candidate. (E.g., col. 7, lines 5-12.) The "post recognition process" includes a supplementary address composition section 103 that determines a supplementary address candidate (col. 6, lines 44-50), and a word connection address composition section 106, which uses a address rule storage section 104 to couple word candidates (col. 6, line 60, to col. 7, line 1).

Applicant respectfully submits that Shimomura does not teach processing an image of an address bearing surface to determine the language in which the address is written, and OCR means directed to this determined language. As discussed, Shimomura's apparatus is a single language reader (Japanese). Accordingly, no language determination is disclosed or suggested, above all, because none is necessary.

Discussion of Bashomatsu

Bashomatsu discloses a full address reading apparatus that uses for each language (Japanese, English) a full address reader 2, 3, as shown in Fig. 1. Each full address reader is independent of the other and performs the complete reading process. The Japanese and English full address read results are then selected based on a higher reliability level.

Applicant respectfully submits that Bashomatsu does not teach processing an image of an address bearing surface to assign an anticipated language to address characters, and OCR means directed to this anticipated language read the address characters. Instead, the same image information is directed fed to each full address reader 2, 3. In other words, Bashomatsu puts each full address reader 2, 3 to work and run the recognition process, even though at least one will not be able to generate a reasonable reading result.

Further, Bashomatsu does not provide any suggestion, for example, to process an image of an address bearing surface to assign an anticipated language to address characters. In fact, Bashomatsu's parallel arrangement of full address readers that receive the same image information teaches away from determining the language before the reading.

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In view of the foregoing discussion, Applicant respectfully submits that Shimomura in view of Bashomatsu fail to disclose or suggest the subject matter of amended Claim 1 or amended Claim 10. As such, amended Claims 1 and 10 are patentable over Shimomura and Bashomatsu. Applicant respectfully request the Examiner to reconsider and withdraw the rejection of Claim 1 under 35 USC § 103(a). In summary, Claims 1 and 10, as amended, are patentable over the cited references, and believed to be in condition for allowance. Such allowance is respectfully requested.

Claims 2 – 4, 6 – 7 and 10 – 13 depend from Claims 1 and 10, respectively. The above arguments regarding Claims 1 and 10 are repeated herewith. For this reason and because of the additional features recited in the dependent claims, Applicants respectfully submit that Claims 2 – 4, 6 – 7 and 10 – 13 are patentable over the cited references. Applicants respectfully request the Examiner to pass Claims 2 – 4, 6 – 7 and 10 – 13 to allowance.

The Examiner rejects Claims 5 and 8 – 9 under 35 USC §103(a) as being unpatentable over Shimomura in view of Bashomatsu further in view of Scanlon (U.S. Patent No. 5,850,480). Claim 5 and 8 – 9 depend from Claim 1. The above arguments are repeated herein. Scanlon does not provide the missing teachings in Shimomura and Bashomura to anticipate nor render obvious Claim 1. Accordingly, at least for the above reasons, Claims 5 and 8 – 9 are also allowable and reconsideration and withdrawal of the rejections are respectfully requested.

CONCLUSION

The present response is intended to correspond with the Revised Amendment Format. Should any part of the present response not be in full compliance with the requirements of the Revised Amendment Format, the Examiner is asked to contact the undersigned for immediate correction.

For the above reasons, Applicant respectfully submits that the application is in condition for allowance, and such allowance is herewith respectfully requested.

Nevertheless, if any undeveloped issues remain or if any issues require clarification, the Examiner is respectfully requested to call Applicant's attorney in order to resolve such issues promptly.

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Please charge any additional fees, including any fees for additional extension of time, or credit overpayment to Deposit Account No.: 502464 referencing client reference: 2001P09588WOUS. However, the Commissioner is not authorized to charge the cost of the issue fee to the Deposit Account.

Respectfully submitted,

Date: 9/13/06

J.P. Musone
John P. Musone
Attorney for Applicants
Registration No. 44,961
Tel: (407) 736 6449
Customer No.: 28204

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